



What is claimed is:

1. A fusion protein for the targeted delivery of antimicrobial peptides comprising a recognition sequence that specifically binds to a microbial organism, and an anti-microbial peptide.
2. The fusion protein for the targeted delivery of antimicrobial peptides of claim 1, further comprising a linker peptide.
3. The fusion protein for the targeted delivery of antimicrobial peptides of claim 1, wherein the microbe is selected from the group consisting of bacteria, rickettsia, fungi, yeasts, protozoa and parasites.
4. The fusion protein for the targeted delivery of antimicrobial peptides of claim 1, wherein the antimicrobial peptide is selected from a group consisting of histatin, defensin, magainin, cecropin, cathelicidin, buforin, gaegurin, indolicidin, tachyplesin, andropin, bactenecin, protegrin, apidaecin, bacteriocin, clavanin, alexomycin, nisin, and ranalexin and derivatives thereof.
5. The fusion protein for the targeted delivery of antimicrobial peptides of claim 1, wherein the microbe is a cariogenic organism.
6. The fusion protein for the targeted delivery of antimicrobial peptides of claim 5, wherein the microbe is *Streptococcus mutans*.
7. The fusion protein for the targeted delivery of antimicrobial peptides of claim 6, wherein the antimicrobial peptide is histatin 5, which is coded for by the nucleic acid sequence designated SEQ ID NO: 1.

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8. The fusion protein for the targeted delivery of antimicrobial peptides of claim 6, wherein the antimicrobial peptide is, dhvar1, which is coded for by the nucleic acid sequence designated SEQ ID NO: 5.

9. The fusion protein for the targeted delivery of antimicrobial peptides of claim 6, wherein the recognition sequence is at least a portion of a variable region of an immunoglobulin that specifically binds to *S. mutans*, and the antimicrobial peptide is selected from the group consisting of histatin 5, having the amino acid sequence designated SEQ ID NO: 4, and dhvar1, having the amino acid sequence designated SEQ ID NO: 8.

10. A method of treating microbial infection comprising exposing the microbe to a fusion protein comprising a recognition sequence that specifically binds to the microbe and an antimicrobial peptide

11. The method of claim 10, wherein the microbe is *Streptococcus mutans* and the anti microbial peptide is selected from a group consisting histatin 5 and dhvar 1.

12. The method of claim 10, wherein the anti-microbial peptide is buforin and the microbe is selected from a group consisting *Escherichia coli*, *Shigella dysenteriae*, *Salmonella typhimurium*, *Streptococcus pneumoniae*, *Staphylococcus aureus*, and *Pseudomonas aeruginosa*.

13. The method of claim 10, wherein the anti-microbial peptide is a cecropin and the microbe is selected from a group consisting *Escherichia coli*, *Shigella dysenteriae*, *Salmonella typhimurium*, *Streptococcus pneumoniae*, *Staphylococcus aureus*, and *Pseudomonas aeruginosa*.

19. The method of claim 10, wherein the anti-microbial peptide is alexomycin and the microbe is selected from a group consisting *Camphylobacter jejuni*, *Moraxella catarrhalis*, and *Haemophilus influenzae*.
20. The method of claim 10, wherein the anti-microbial peptide is selected from the group consisting of defensin,  $\alpha$  defensin and  $\beta$  pleated sheet defensin and the microbe is *Streptococcus pneumoniae*.
21. The method of claim 11 wherein the recognition sequence is at least a portion of a variable region of an immunoglobulin selected from the group consisting of SWLA1, SWLA2 and SWLA3.
22. The fusion protein of claim 1 wherein the recognition sequence is a polypeptide and its target is a ligand.